

Oct-07-05 10:27am From:Honigman, Miller, Schwartz, Cohn

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T-127 P.003/009 F-476

Appl. No. 10/692,613
Amendment After Final Rejection dated October 7, 2005
Reply to final Office action of September 9, 2005
Attorney Docket K-2043

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

LISTING OF CLAIMS:

1-16 (canceled)

17. (new) A rotary cutting tool, comprising:

- a rotary cutting tool including a body having a rotational axis;
- a first flute formed in said body and including a first insert-receiving pocket;
- a second flute formed in the body and including a second insert-receiving pocket, the second insert-receiving pocket adjacent the first insert-receiving pocket;
- a first cutting insert mounted in the first insert-receiving pocket;
- a second cutting insert mounted in the second insert-receiving pocket,

wherein each cutting insert includes a first end, a second end, a centerline disposed midway between the first and second ends, a tapered cutting edge spanning between the first end and the second end, a first corner formed at the juncture of the tapered cutting edge and the first end, and a second corner formed at the juncture of the tapered cutting edge and the second end, and

wherein a difference in radial dimension as measured from the rotational axis of the cutting tool between the tapered cutting edge at the centerline of the first cutting insert and one of the first and second corners of the second cutting insert define a radial runout compensation dimension that is greater than a predetermined manufacturing tolerance of the rotary cutting tool, thereby minimizing radial runout when the cutting tool is rotated about the rotational axis.

18. (new) The rotary cutting tool according to Claim 17, wherein the centerline of the first cutting insert and the first end of the second cutting insert overlap one another when the rotary cutting tool is rotated about the rotational axis.

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19. (new) The rotary cutting tool according to Claim 18, wherein the centerline of the first cutting insert and the first end of the second cutting insert overlap each other by more than half a length of the cutting edge of the first cutting insert.

20. (new) The rotary cutting tool according to Claim 17, wherein the cutting edge of each insert are parallel to each other.

21. (new) The rotary cutting tool according to Claim 17, wherein the tapered cutting edge is defined by a first tapered section and a second tapered section.

22. (new) The rotary cutting tool according to Claim 21, wherein the first tapered section and the second tapered section comprises a convex curved configuration.

23. (new) The rotary cutting tool according to Claim 22, wherein the convex curved configuration is that of a constant radius curve.

24. (new) The rotary cutting tool according to Claim 17, wherein the first and second insert-receiving pockets are helically arranged along the length of the body.

25. (new) The rotary cutting tool according to Claim 17, wherein the first and second flutes are helically arranged along the length of the body.

26. (new) The rotary cutting tool according to Claim 17, wherein the predetermined manufacturing tolerance is approximately 0.002 inches, and wherein the radial runout compensation is approximately 0.003 inches.

27. (new) A rotary cutting tool, comprising:
a rotary cutting tool including a body having a rotational axis;
a first flute formed in said body and including a first insert-receiving pocket;
a second flute formed in the body and including a second insert-receiving pocket, the second insert-receiving pocket adjacent the first insert-receiving pocket;
a first cutting insert mounted in the first insert-receiving pocket;

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a second cutting insert mounted in the second insert-receiving pocket,
wherein each cutting insert includes a first end, a second end, a centerline disposed midway between the first and second ends, a tapered cutting edge spanning between the first end and the second end, a first corner formed at the juncture of the tapered cutting edge and the first end, and a second corner formed at the juncture of the tapered cutting edge and the second end, and

wherein the tapered cutting edge of the first cutting insert and the first and second corners of the second cutting insert define a deviation dimension such that a maximum outward radial displacement of the first and second corners of the second insert from the rotational axis is less than a magnitude of a predetermined manufacturing tolerance, thereby minimizing radial runout when the rotary cutting tool is rotated about the rotational axis.

28. (new) The rotary cutting tool according to Claim 27, wherein the centerline of the first cutting insert and the first end of the second cutting insert overlap one another when the rotary cutting tool is rotated about the rotational axis.

29. (new) The rotary cutting tool according to Claim 28, wherein the centerline of the first cutting insert and the first end of the second cutting insert overlap each other by more than half a length of the cutting edge of the first cutting insert.

30. (new) The rotary cutting tool according to Claim 27, wherein the cutting edge of each insert are parallel to each other.

31. (new) The rotary cutting tool according to Claim 27, wherein the tapered cutting edge is defined by a first tapered section and a second tapered section.

32. (new) The rotary cutting tool according to Claim 31, wherein the first tapered section and the second tapered section comprises a convex curved configuration.

33. (new) The rotary cutting tool according to Claim 32, wherein the convex curved configuration is that of a constant radius curve.

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34. (new) The rotary cutting tool according to Claim 27, wherein the first and second insert-receiving pockets are helically arranged along the length of the body.

35. (new) The rotary cutting tool according to Claim 27, wherein the first and second flutes are helically arranged along the length of the body.

36. (new) The rotary cutting tool according to Claim 27, wherein the predetermined manufacturing tolerance is approximately 0.002 inches, and wherein the radial runout compensation is approximately 0.003 inches.

37. (new) A rotary cutting tool, comprising:
a rotary cutting tool including a body having a rotational axis;
a first flute formed in said body and including a first insert-receiving pocket;
a second flute formed in the body and including a second insert-receiving pocket, the second insert-receiving pocket adjacent the first insert-receiving pocket;
a first cutting insert mounted in the first insert-receiving pocket;
a second cutting insert mounted in the second insert-receiving pocket,
wherein each cutting insert includes a first end, a second end, a centerline disposed midway between the first and second ends, a tapered cutting edge comprising a first tapered section and a second tapered section that spans between the first end and the second end, a first corner formed at the juncture of the tapered cutting edge and the first end, and a second corner formed at the juncture of the tapered cutting edge and the second end, and
wherein the first and second tapered sections of each cutting insert is configured to provide a depth of cut that does not exceed a magnitude of a predetermined manufacturing tolerance, thereby minimizing radial runout when the rotary cutting tool is rotated about the rotational axis.

38. (new) The rotary cutting tool according to Claim 37, wherein the centerline of the first cutting insert and the first end of the second cutting insert overlap one another when the rotary cutting tool is rotated about the rotational axis.

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39. (new) The rotary cutting tool according to Claim 38, wherein the centerline of the first cutting insert and the first end of the second cutting insert overlap each other by more than half a length of the cutting edge of the first cutting insert.

40. (new) The rotary cutting tool according to Claim 37, wherein the cutting edge of each insert are parallel to each other.

41. (new) The rotary cutting tool according to Claim 37, wherein the first tapered section and the second tapered section comprises a convex curved configuration.

42. (new) The rotary cutting tool according to Claim 41, wherein the convex curved configuration is that of a constant radius curve.

43. (new) The rotary cutting tool according to Claim 37, wherein the first and second insert-receiving pockets are helically arranged along the length of the body.

44. (new) The rotary cutting tool according to Claim 37, wherein the first and second flutes are helically arranged along the length of the body.

45. (new) The rotary cutting tool according to Claim 37, wherein the predetermined manufacturing tolerance is approximately 0.002 inches.